Dell Processor Acceleration Technology

Introduction

Dell Processor Acceleration Technology (DPAT), enabled through the BIOS, provides a better performing solution than turning turbo off to force the processor to operate at the lowest base frequency, while maintaining a more consistent turbo frequency state. DPAT minimizes transition duration when the processor functions in turbo mode, thereby decreasing jitter and allowing for lesser latency.

The following Dell PowerEdge systems with Intel E5-2690 processors installed, support DPAT.

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PowerEdge System	Minimum BIOS Version	Minimum iDRAC Firmware Version
R720	1.4.8	1.30.30
R720xd	1.4.8	1.30.30
R620	1.4.8	1.30.30

Enabling DPAT

To enable DPAT on your system, make the following changes in the BIOS setup.

1. Set the required number of cores:
   a. Press <F2> to enter the System Setup menu.
   b. In the Processor Settings screen, set the Number of Cores per Processor to the required value.

   NOTE: The maximum turbo frequency increases with fewer cores enabled.
2. Make the required changes in the BIOS System Profile using one of the following methods.
   - Set System Profile in the BIOS setup to Performance mode.

   or

- Make the changes using the System Profile Custom selection.
  - Set System Profile in BIOS to Custom mode.
  - Set CPU Power Management to Maximum Performance mode.
  - Set Turbo Boost mode to Enabled.

You must enable DPAT with a controlledturbo command using one of the following modes:

- Dell Remote Access Controller Admin (RACADM)
- Web Services for Management (WSMAN)
- Dell OpenManage Deployment Toolkit (DTK)

Enabling DPAT Using RACADM (Firmware RACADM: SSH or Telnet Session)

NOTE: Ensure that LC and CSIOR are enabled before performing the configuration.

1. Set ControlledTurbo to Enable by running the following command:

   ```
   $ racadm set bios.procsettings.controlledturbo
   Enabled
   ```

2. Create commit and host reboot jobs by using the jobqueue command:

   ```
   $ racadm jobqueue create BIOS.Setup.1-1 -r pwrcycle
   -s TIME_NOW -e TIME_NA
   ```

3. Reboot the server and run CSIOR for the setting to take effect.

NOTE: The BIOS settings only take effect after you reboot the server and run CSIOR. Attribute value names are case sensitive.

Disabling DPAT Using RACADM (Firmware RACADM: SSH or Telnet Session)

1. Set ControlledTurbo to Disable by running the following command:

   ```
   $ racadm set bios.procsettings.controlledturbo
   Disabled
   ```

2. Create commit and host reboot jobs by using the jobqueue command:

   ```
   $ racadm jobqueue create BIOS.Setup.1-1 -r pwrcycle
   -s TIME_NOW -e TIME_NA
   ```

3. Reboot the server and let CSIOR run for the setting to take effect.

Enabling and Disabling DPAT Using WSMAN

To enable or disable DPAT using WSMAN, run the following command:

```
winrm i SetAttribute
http://schemas.dmtf.org/wbem/wscim/1/cim-
schema/2/root/dcim/DCIM_BIOSService?SystemCreationClass
Name=DCIM_ComputerSystem+CreationClassName=
DCIM_BIOSService+SystemName=DCIM:ComputerSystem+Name=
DCIM:BIOSService -u:%1 -p:%2 -r:https://%3/wsman -
SkipCNcheck -SkipCAcheck -SkipRevocationCheck -
encoding:utf-8 -a:basic -file:set_controlled_turbo.xml
```

NOTE: Replace %1 with iDRAC userID, %2 with iDRAC password and %3 with the iDRAC IP.

Enabling Turbo Using WSMAN

To enable turbo using WSMAN, use the following content for set_controlled_turbo.xml:

```
<p:SetAttribute_INPUT xmlns:p=
"http://schemas.dmtf.org/wbem/wscim/1/cim-
schema/2/root/dcim/DCIM_BIOSService">

<p:Target>BIOS.Setup.1-1</p:Target>

<p:AttributeName>ControlledTurbo</p:AttributeName>

<p:AttributeValue>Enabled</p:AttributeValue>

</p:SetAttribute_INPUT>
```

Disabling Turbo Using WSMAN

To disable turbo using WSMAN, use the following content for set_controlled_turbo.xml:

```
<p:SetAttribute_INPUT xmlns:p=
"http://schemas.dmtf.org/wbem/wscim/1/cim-
schema/2/root/dcim/DCIM_BIOSService">

<p:Target>BIOS.Setup.1-1</p:Target>

<p:AttributeName>ControlledTurbo</p:AttributeName>

<p:AttributeValue>Disabled</p:AttributeValue>

</p:SetAttribute_INPUT>
```

Enabling DPAT Using DTK

Run the following command to enable DPAT using DTK:

```
Syscfg -controlledturbo=enable
```

Disabling DPAT Using DTK

Run the following command to disable DPAT using DTK:

```
Syscfg -controlledturbo=disable
```

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